

SUGGESTIBILITY IN CHILDREN

WHAT ARE CHILDREN TELLING US?

A CROSS CULTURAL STUDY OF CHILDREN'S SUGGESTIBILITY

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### ABSTRACT

The suggestibility of children in interrogative situations is a significant issue from both developmental and legal standpoints. Formerly, studies in this area indicated that there were pronounced age-related differences in suggestibility, with preschool children being particularly susceptible to misleading suggestions. The present study attempts to make an international comparison between Indian and American children and the role that a child's age, gender, culture and exposure to socially conforming and authoritarian parenting may have on children's performance on measures of suggestibility. Analyses revealed that while both groups of children responded affirmatively to suggestive questions, cultural differences—manifested in the current work as an ascription to either individualistic or collectivistic attitudes- were seen in their responses. American children were found to be more suggestible than Indian children, with an association being observed between permissive parenting and suggestibility. Additionally, three-to-four year olds were more suggestible than their older counterparts, and boys more suggestible than girls. This work is discussed within the context of children's eye-witness memory, and highlights the usefulness of such measures in forensic settings.

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### BIOGRAPHICAL SKETCH

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### **Introduction**

A witness's testimony is an essential moment during a legal case, during which the fact-finder will assess the testimony's reliability. Testimony may consist of an amalgam of accurate perceptions coupled with subjective cognition, the latter referring to conscious or unconscious elements that are not based on actual perception or memory (e.g. Loftus 1996). During a forensic interview, it is important to determine whether post-event misinformation in the form of suggestive questions has resulted in contamination of witness' memory. Thus, it is critically important to assess the possibility that memory suggestibility has altered a witness' understanding of the facts.

The definition of the concept of 'Suggestibility' as proposed by Ceci and Bruck (1993) is: "suggestibility concerns the degree to which children's encoding, storage, retrieval, and reporting of events can be influenced by a range of social and psychological factors" (p.404). Noteworthy in this definition is that the inclusion of the word "reporting" extends suggestibility to socio-cultural factors that are non-cognitive, such as pressure on a child to misreport an experience even if the memory processes themselves (i.e. encoding, storage and retrieval) are uncontaminated.

During the 1980's there was a tremendous change in society's sensitivity to and recognition of instances of violence and abuse that were endured by children. Spurred by an increased



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awareness of the pervasiveness of child sexual abuse, states after states revised their criminal procedures, enabling prosecutors to deal more effectively with victims and defendants. These changes included allowing children to provide uncorroborated testimony in cases concerning sexual abuse—a crime that by its very nature often does not involve an eyewitness other than the perpetrator and the victim—Additionally, the competency requirement for child witnesses was eliminated. (For a description of these changes, see Bottoms & Goodman 1996; Davies et al 1995; Goodman et al 1992b; McGough 1994.) With a relaxation of these standards, there has come an increase in the number of children who provide witness statements in legal cases.

Each year there are hundreds of thousands of very young children involved in juvenile and criminal justice proceedings, in America alone. Although only a fraction of these children end up testifying in criminal court, all of them are interviewed by law enforcement officials and/or child protective service workers, and many will give depositions and unsworn testimony (Scullin & Ceci, 2000). In addition, allegations of sexual impropriety involving a child occur in a large number of civil and family court cases, thus bringing the number of children who have some level of involvement with adult interviewers into the many hundreds of thousands.

Similarly, the Indian Judicial System has laid down some rules to determine the competence of a testimony of a child witness' testimony, as determined by the Indian Evidence Act and other relevant judgements (Section 118, The Indian Evidence Act, 1872; Suresh And Anr vs. The State of U.P., 2001). Thus in India too, children can be competent witnesses; however, despite their competence, they are the most vulnerable of all witnesses to post-event suggestions and

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other forms of contamination (Ceci & Bruck, 1995). Moreover, children present a special challenge when they become participants in the legal system. They are gullible and vulnerable to making serious errors in their testimony. In many cases, the child's answers to the interviewer's questions emerge as critically important, and the defense will attempt to raise doubts about the validity of the child's statements.

Adding to the above high incidence of abuse and neglect proceedings involving very young children, is the high number of young children entangled in acrimonious custody disputes, PINS (Persons In Need Of Supervision) actions, neglect procedures, and termination of parental rights suites; at that point the outright quantities of the numbers of young children enmeshed in the justice system is cosmic.

In sum, there are enormous numbers of children who are interviewed each year. And with the child's answers to interviewer's questions emerging as centrally important in many of these cases, making the question of whether children's reports are reliable a much more significant one in the recent years.

Before the 1980's most studies of suggestibility involved asking children a misleading question (i.e. a question that contains a false supposition) about some event they experienced or observed (e.g., a school demonstration, a story) (Bruck & Ceci, 1999). A consistent finding of this literature was that younger children were more suggestible than older children (Ceci & Bruck, 1993). However, recent research has shown that there is much variability within age groups (as explained and cited below). There are some conditions under which there are no de-

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developmental effects or even “reverse developmental effects”, which are conditions where older children and even adults are more susceptible to suggestion than younger children (Brainerd, Reyna and Ceci, 2008; Otgaar, Howe, Peters, Sauerland, Raymaekers, 2013). For example, research has shown that, because older children are more likely than younger children to draw inferences, they are subsequently more likely to falsely report inferences about the causes of ambiguous events, mistaking them for actual experiences (Principe et al, 2008).

These findings are highly significant forensically, providing evidence for the phenomenon that, in some situations children’s evidence may be less likely than an adult’s evidence to be tainted by suggestion or false memory. This necessitates a more refined approach in reviewing of testimony and conducting forensic examinations, by taking into account the subject matter of the testimony, how elaborately the testimony may be represented by witnesses, any semantic associations the witnesses may have made, and the type of potential memory distortions child witnesses may experience. The above factors, moreover, have been shown to be more important than age itself in predicting memory distortion (Ceci, Papierno & Kulkofsky, 2007).

Little attention, however, has been given to cultural influences on suggestibility. A few ways in which a child’s culture can influence their testimony have been highlighted in the past (Siegal, 1996). For instance, a child may hesitate to reveal abuse if the consequences appear more damaging than the continuation of harm (Berliner & Barbieri, 1984). For example, a mother may threaten her child that if she tells the police that her father sexually abused her, the father

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will go to jail and the child will go to an orphanage. In the Eastern cultures, particularly in India, this is looked down upon and the child may feel fearful or threatened and hence will not end up telling the police what really happened for fear of consequences. Another cultural impact may come in the form of social judgements. Social Judgement Theory (crafted by Sherif & Hovland, 1961), proposed that a person appraises a situation by beginning with their preferred position, then negotiates the novel facts with the ego to arrive at the final judgement. It has also been proposed that social judgements are affected on some level by culture (Brothers & Ring, 1992). Therefore when determining the factors that may influence a child's response during an interview, it is important to remember that cultural forces may be bearing weight on the responses disclosed.

Although Piaget set forth his account of knowledge acquisition and the findings obtained by him from samples of Swiss children to be of universal significance; a considerable body of evidence is now available on the way in which children from different cultural backgrounds perform on Piagetian tasks (see Dasen, 1977, for examples). Thus conservation experiments have been administered to such diverse samples as Eskimo and Aboriginal children, African children in locations such as Senegal and Rwanda, children in Hong Kong and in Papua New Guinea, as well as those from a great many other settings differing sharply from one another in a large range of childrearing and educational experiments that might be relevant to the course of cognitive development. How such children perform on a task originally designed for European samples will, of course, depend on the familiarity of the material used, the way the instructions are

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communicated and the child's grasp of 'being tested'. Certain conclusions from these studies, hence, have now become relevant.

Certain conclusions from these studies are of particular relevance. In the first place, children from non-Western societies often show a considerable lag in acquiring operational thinking. For example, Aboriginal children living in Central Australia with only minimal contact to White culture do not succeed on conservation tasks until several years later than their European counterparts; some indeed are still not capable of concrete operational thinking in late adolescence or even adulthood (Knapp & Seagrim, 1981). Yet Aboriginal children living and attending school in White communities and attending schools there solve such tasks within the same age range as Piaget's children, presumably because their schooling provides the spur for the concepts necessary to operational thinking. What has also become evident, however, is that even when development is greatly delayed, the progression from stage to stage still occurs in the same order that Piaget outlined.

Across cultures, children become capable of concrete operations only after going through the pre-operational stage, and if they do reach the formal operations stage it will invariably follow a period of concrete operational thinking. Cultural factors, that is, can affect the 'rate' of attainment, but do not alter developmental 'sequence' of these cognitive skills.

In addition, it is also apparent that in every cultural group certain cognitive skills are valued more than others, and that as a result development of concepts within a stage will be

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differentially affected. A telling example comes from a study by Price-Williams, Gordon and Ramirez (1969) on 6- to 9-year-old Mexican children, some of whom had grown up in pottery-making families, while others came from families engaged in different skills. A series of conservation tasks was administered to the children, including a test of substance conservation which, as is customary, was assessed by means of transforming lumps of clay. All the potters' children were found to be greatly advanced in their understanding of substance conservation when compared with the other children. Thus it can be concluded that different cultures promote development in some areas of cognitive understanding more than in others, and that experiential factors are thus of rather more significance than was attributed to them by Piaget.

In spite of limited associations between culture and children's suggestibility, the aforementioned findings suggest that a culture's influence on suggestibility and false memories could begin earlier than previously considered. When an interviewer asks a young child in the course of a murder investigation if he can remember if his father had a knife when he left the house, as Friedman & Ceci (2015) argue, the child must recognize not only that others regard her as having an obligation to speak accurately, they may have a hidden agenda in asking questions, and that her statement will be taken as a true depiction of the event in question, and may cause serious adverse consequences for another person (e.g., her father). This is why it is so important to understand that others have beliefs that may differ from your own and that motivate their questioning. Without this understanding, a child may tell an interviewer what she assumes the interviewer wants to hear, simply to terminate what may be an uncomfortable discussion.

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However, as important as culture may be to suggestibility, limited research exists on the subject. Cognitive processes differ markedly between children from different cultures, with best evidence coming from studies such as those that have explored the differential effects of strategy training on German and American elementary- school children and assessed the role of parents in the development of their children's strategic behavior and metacognition.

German children were found to be more strategic than American children, instructed children performed better than control children and German parents reported more instruction of strategies in the home. These data suggested that formal education is responsible for aspects of cognitive development that have sometimes been viewed as a function of age (Carr, Kurtz, Schneider, Turner & Borkowski, 1989).

In a different group of studies on Moral Suggestibility between US and Brazilian children, it was found that younger children in the US are more suggestible than Brazilian children. Moreover, suggestibility was greater when the interviewer was an adult than a teenager in the US, but not in Brazil (Saltzstein, Dias & Millery, 2004).

Thus cultural differences with respect to suggestibility do exist, as shown in previous literature. And some studies have also focused on specific evidence related to attention to visual scenes and the activities of others. Children from urban Western cultures tend to focus on focal objects, whereas children from urban East-Asian cultures rather attend to contextual elements of a visual scene (Nisbett et al, 2001; 2003). Regarding the attention to others' activities, children

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from subsistence based farming communities often observe several activities simultaneously, while children from urban Western contexts tend to focus on activities sequentially (Rogoff, 2003; Rogoff et al, 2003). Children from three prototypical cultural contexts (urban Germany, rural Cameroon, urban Japan) were assessed to investigate similarities and differences in the visual attention to scenes, and to the activities to others; and the findings indicated that basic cognitive functions varied highly between cultures, which were already apparent in the preschool years (Köster et al, 2018).

The most recent research that involved culture as a function in the studies of suggestibility was in regard to the differences in hypnotic suggestibility between young adults of different ethnic groups, and between male and female subjects (Trebes, 2006). In this study though, the different ethnic groups came from the same country.

Moreover, very few studies have examined the differences between and within countries with respect to the phenomenon of suggestibility and also very few considered race or socioeconomic status as an influence on suggestibility and false memory, something researchers have bemoaned (Bruck & Melnyk, 2004). Principal evidence about this comes from the finding that child characteristics such as meta-memory ability, intellectual functioning, and temperament may indeed be helpful in determining a child's capacity to accurately recall information in an interview, although for the most part age is the best predictor. Findings additionally, also underscore the importance of considering a child's SES and race when planning and conducting



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interviews with young children; paving way for further research in this area (Geddie, Fradin & Beer, 2000).

### **Present Study**

The present study is motivated by such concerns, and aims to better understand the individual and cultural differences in the way young children respond to an investigative interviewer's questions and the effect of the interviewer's suggestions on the children's responses.

Expanding upon previous literature, the study additionally sought to examine the role that these other individual and cultural factors, beyond age, may play in a child's ability to respond affirmatively to suggestive questions. Namely, the current study examined the impact of a child's exposure to their particular culture, as well as their degree of exposure to authoritarian and socially-conforming parenting.

It was hypothesized that while both groups of children tend to respond affirmatively to suggestive questions- compared to older children (categorized in the current work as seven to ten-year-olds), younger children (categorized here as three- to six-year-olds) would be more suggestible. Moreover, comparisons between children in India and children in America on suggestibility-proneness are predicted to show cultural invariance.

This is because India as a culture fosters authoritative parenting on a greater scale than the United States, and thus as prior work in the suggestibility literature has found greater authoritarianism is associated with higher suggestibility (Crossman, 2001).

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Thus, across both age and culture, those participants who were exposed to a higher degree of authoritarian parenting, would subsequently have higher suggestibility scores. A positive relationship between authoritativeness and suggestibility, in this regard was hypothesized.

Driven by prior work demonstrating the relationship between Suggestibility and Socio Economic Status (SES), the present study additionally hypothesized that children from lower SES backgrounds are more suggestible than children from higher SES backgrounds.

Results of the study are then discussed within the context of children's eye-witness memory, usefulness of such measures in forensic interviews to detect ability of the child to resist suggestions before testimony. The psycho-legal implications associated with these findings are also discussed.

## **Methodology**

### **Participants**

Approximately one-hundred-and-twenty preschool and elementary school aged children (sixty each from the two countries) completed all tasks associated with the current study. Participants were recruited from demographically similar schools in the Ithaca (USA) and Aurangabad (India) areas.

Within the sixty participants in India, there were twenty-six participants aged three- to five-year-olds (categorized as 'Young') and thirty-four participants aged six-to-seven-year-olds

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(categorized as ‘Old’) . Participants age ranged from three to seven-year-olds ( $M_{\text{age}} = 5.55$ ,  $SD = 1.25$ ). Participants were 53.3% female (thirty-two participants) and 46.7% male (twenty-eight participants). 100% participants were Asian. 43.3% participants belonged to High Income Families, 28.3% to Middle Income Families and 28.3% to Low Income Families.

Within the sixty participants in America, there were thirty-two participants aged three-to-five-year-olds, and twenty-eight participants aged six-to-seven-year-olds. Participants age ranged from three-to-seven-year-olds ( $M_{\text{age}} = 5.03$  ,  $SD = 1.50$  ). Participants were 45% female (twenty-seven participants) and 55% male (thirty-three participants). 40% participants were White/Caucasian, 25% participants were White/Asian, 16.7% were Black/African American and 18.3 belonged to other ethnicities (which include Asian, Hispanic and Mixed Ethnicities). 81.7% participants belonged to High Income Families, 11.7% to Middle Income Families and 6.7% to Low Income Families.

The p-values for each of the variables in the study were calculated using One-Way ANOVA's and Chi-Square Tests for both Indian and American Data (See Table 1).

### **Materials**

#### **Research Video:**

All participants were first presented with a fictional Research Video, which depicts a mild misconduct such as stealing, taking place. The video starts off with a group of older students studying and one girl leaves her computer (MacBook) on the table and walks to a boy to explain something to him. Another girl walks in and steals the first girl's computer. The girl however doesn't notice her computer is gone until much later when she goes back to her place to

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work on it. Nobody else in the video notices the thief or this act of stealing. The video did not allow for any auditory encoding, and thus participants just had to watch the video and visually encode what was happening. Following the research video, the Video Suggestibility Scale for Children (VSSC) was used to determine participants' suggestibility-proneness; as well as a buffer, thus allowing more time for forgetting the video details as might occur in an actual forensic investigation.

### **Video Suggestibility Scale for Children (Scullin & Ceci, 2001)**

The Video Suggestibility Scale for Children (VSSC), is a scale designed to measure individual differences in suggestibility in preschool children (Adapted from Scullin & Ceci, 1999). The scale entails showing children a video about the birthday party of a young boy named Billy. An open-ended, non-suggestive question was first posed to children asking them to describe everything they saw in Billy's Birthday Party Video. When children stopped responding to open-ended probes, a few directed probe questions were asked. Next, eighteen scale suggestive questions (Yes/No) were administered. Additionally, children were given mild negative feedback (e.g, 'You missed a few of the questions. Let's go through them again and see if you can do better this time.') halfway through the scale procedure and again at the end in order to keep the feedback salient, with half of the questions repeated each time. Analysis of the data was done in terms of calculating 'Yield', 'Shift' and 'Total Suggestibility' (Adapted from Scullin & Ceci, 2001).

Yield 1: Children were given a score of one if they responded affirmatively to a subtly leading question without any negative feedback from the questioner. The 'True' questions were

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not scored for this; and the scores thus ranged from 0-14, per respondent.

Yield 2: Children were given a score of one if they responded affirmatively to a leading question when the question was repeated after the child received negative feedback from the questioner; and the scores ranged from 0-14, per respondent.

Shift: If the child has changed their response (from 'Yes' to 'No' or 'No' to 'Yes') after the two rounds of questioning, they received a score of one. Changes to the 'True' questions were included in the scoring; and the scores thus ranged from 0-18, per respondent.

Total Suggestibility: The composite suggestibility score was created by summing the child's Yield 1 (14) and Shift (18) scores; thus ranging the total scores from 0-32, per respondent.

Children were told 'Remember, the first video you saw, that had no sound? I will ask you some questions about that video now' and 14 questions (Yes/No) about the research video were asked. No negative feedback was given during or after these questions, and the questions were asked only once. Twelve of these questions were false suggestive in nature (e.g., 'Did the owner of the Dell laptop see the thief?', 'Did the boy help the owner look for her Dell laptop?').

Whereas two of them were to test accuracy (e.g., 'Was the stolen object kept on the table?', 'Was the thief wearing glasses?') Throughout the questioning, the laptop that was stolen is referred to as Dell (instead of its actual brand MacBook) so as to see whether 1) children stop the experimenter and correct her and 2) if and how often they use this suggestion when they recall the video.

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For the Research Suggestibility Video, children were given a score of one if they responded affirmatively to a leading question. The two ‘True’ questions were not scored for this; and the scores thus ranged from 0-12, per respondent.

### **Parental Authority Questionnaire (PAQ) (Adapted from Buri, 1991)**

A shorter, modified version of Buri’s (1991) Parental Authority Questionnaire was developed for the purposes of this study. This 13-item questionnaire designed to measure two of Baumrind’s (1971) four parenting styles, namely Authoritative and Permissive is utilized by encompassing two dimensions of parenting: parental responsiveness and parental demandingness (Maccoby & Martin, 1983). Parental responsiveness refers to “the extent to which parents intentionally foster individuality, self-regulation, and self-assertion by being attuned, supportive, and acquiescence to children’s special needs and demands” (Baumrind, 1991, p.62). Parental demandingness refers to “the claims parents make on children to become integrated into the family whole, by their maturity demands, supervision, disciplinary efforts and willingness to confront the child who disobeys” (Baumrind, 1991, pp. 61-62). Authoritative parents thus are both demanding and responsive and Permissive parents are more responsive than demanding (Alkharusi, Aldhafri, Kazem & Alzubaidi, 2011). Participant’s parents were asked to indicate how strongly they agree or disagree with each statement on a 5-point Likert Scale (with ‘1’ being ‘Strongly Disagree’ and ‘5’ being ‘Strongly Agree’). Examples of statements include, “Even if my child doesn’t agree with me, I feel that it is for her/his own good if they are forced to do what I think is right”. For every statement the most Authoritarian response was set to be ‘5’, so certain

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statements were reverse-scored to maintain logical consistency. Responses were then summed to create a total score out of sixty-five per respondent, and the average score per respondent was further coded.

### **Procedure**

All participants were first shown the two videos (The Research Video first, followed by the Video Suggestibility Scale Video).

They were then asked an open ended question asking them to recall everything they saw in the Video Suggestibility Scale Video and their response was audio recorded. Following this, questions about the same video were asked, twice.

Afterwards, participants were asked structured questions about the Research Video and lastly asked to recall everything they remember from that video in an open-ended question, which was also audio recorded.

Separately participants' parents were given the Demographic Form and the aforementioned questionnaires to assess the degree to which they endorsed Authoritative or Permissive parenting attitudes (Baumrind, 1991; Buri, 1991).

## **Data Analyses and Results**

### **Frequency of Variables**

Tables 1 presents the descriptives for each of the variables in the study for children in India and America. Of note, are differences between the two countries on the following variables:

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Parents' SES Ranks ( $M_{Ind} = 4.67$ ,  $M_{Usa} = 2.10$ )- showing that more children in India belonged to Low Income Backgrounds than in USA. The parents' SES Ranks in India thus ranged from one-to-eleven whereas in the USA, the SES Ranks were primarily one-to-five.

Yield 1 ( $M_{Ind} = 3.98$ ,  $M_{Usa} = 5.67$ )- showing that children in America tended to respond affirmatively to suggestive questions greater than children in India. One of the reasons for this possibility is that our sample for younger (three-to-five-year-olds) children was greater in USA than in India; and as previous literature has shown younger children tend to score higher on measures of suggestibility than older children (Scullin & Ceci, 2001). Similarly, Yield 2 is also significantly greater in children in USA than in children in India. However, since older children are more likely to change their responses after the negative feedback has been provided (Scullin & Ceci, 2001), the difference between means on Shift between children in India and America is quite low.

The means for Total Suggestibility and Research Suggestibility are greater in children in USA ( $M_{TS} = 10.97$ ,  $M_{RS} = 6.52$ ) than in children in India ( $M_{TS} = 9.18$ ,  $M_{RS} = 4.95$ ). Finally, the Parental Authoritativeness Scores are also greater in USA ( $M_{PAQ} = 35.33$ ) than in India ( $M_{PAQ} = 37.07$ ), confirming that Authoritativeness is fostered relatively more in India as a culture than in the United States (Jambunathan & Counselman, 2010).



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**TABLE 1**

		India	USA	P-value
Age		5.55 (1.25)	5.03 (1.50)	<b>0.043</b>
Age Range	Y O	26 (43.3%) 34 (56.7%)	32 (53.3%) 28 (46.7%)	0.361
Ethnicity	As W/C W/A B/A Mixed	60 (100%)	24 (40%) 15 (25%) 10 (16.7%) 11 (18.3%)	0.000
Gender	F M	32 (53.3%) 28 (46.7%)	27 (45%) 33 (55%)	0.584
Income Range	L M H	17 (28.3%) 17 (28.3%) 26 (43.3%)	4 (6.7%) 7 (11.7%) 49 (81.7%)	0.000
Parents' SES Ranks		4.67 (3.31)	2.10 (1.95)	0.000
Yield 1		3.98 (2.75)	5.67 (3.50)	<b>0.004</b>
Yield 2		2.88 (2.00)	6.13 (3.10)	0.000
Shift		5.20 (2.89)	5.30 (2.57)	0.842
Total Suggestibility		9.18 (4.65)	10.97 (4.25)	<b>0.03</b>
Research Suggestibility		4.95 (2.25)	6.52 (2.39)	0.000
Total PAQ Score		37.07 (7.49)	35.33 (4.11)	0.119
Average PAQ		2.85 (0.57)	2.71 (0.31)	0.119

**P-values significant at < 0.05 are in bold**

### Intercorrelations among Measures

Table 2 provides a pairwise Pearson correlation matrix of the variables of the study for India. Parents's SES Ranks highly correlated with children's age depicting that older children

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belonged to higher SES ranks, i.e low income groups. Parents' SES Ranks are also highly correlated to Parental Authoritativeness showing that parents belonging to lower income groups were more authoritative.

**Table 2**

**Pairwise Pearson correlation matrix of variables (N=60) for Indian Data**

	1	2	3	4	5
1) Age	1.00				
2) Parents' SES ranks	<b>0.57</b>	1.00			
3) Tot. Suggestibility	0.01	-0.15	1.00		
4) Res. Suggestibility	-0.03	-0.009	0.13	1.00	
Total PAQ Score	0.20	<b>0.47</b>	-0.02	0.03	1.00

**Correlations significant at  $P < 0.01$  are in bold**

Table 3, alternatively, provides a pairwise Pearson correlation matrix of the variables of the study for America. Similar to the India data, American children's age is highly correlated with their Parents' SES Ranks. Age is also negatively correlated with Total Suggestibility, demonstrating that suggestibility decreases as participants grow older, replicating Scullin & Ceci (2000)'s findings. Total Suggestibility and Research Suggestibility were also significantly correlated.

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**Table 3**

**Pairwise Pearson correlation matrix of variables (N=60) for American Data**

	1	2	3	4	5
1) Age	1.00				
2) Parents' SES ranks	<b>0.41</b>	1.00			
3) Tot. Suggestibility	<b>-0.38</b>	0.004	1.00		
4) Res. Suggestibility	-0.14	0.11	<b>0.54</b>	1.00	
Total PAQ Score	0.22	0.07	0.03	0.01	1.00

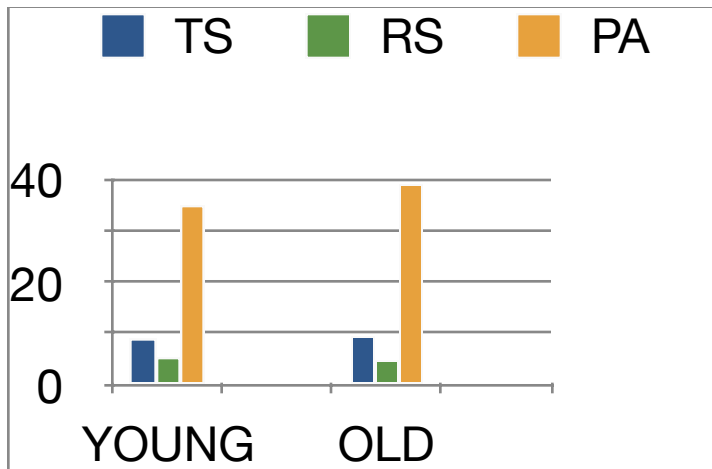
**Correlations significant at  $P < 0.01$  are in bold**

One-way ANOVA (Figure 1) between Age Range and Suggestibility (both Total and Research) as well as between Age Range and Parental Authoritativeness Scores, showed that Indian younger children score lower on Total suggestibility and higher on Research Suggestibility, but parental authoritativeness is significantly higher in older children than younger children (38.85 vs 34.73). In American children, on the other hand, total and research suggestibility is lower in older children than in younger children and parental authoritativeness does increase (by 1.72) as children grow older, but is not as significant as is in India (increases by 4.12).

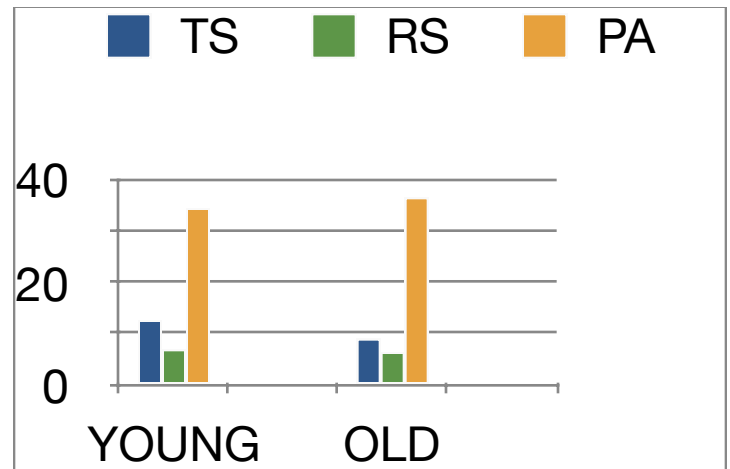
### **FIGURE 1**

**Participants' Suggestibility and Parental Authoritativeness, by Age Group for India and America**

## SUGGESTIBILITY IN CHILDREN



INDIA



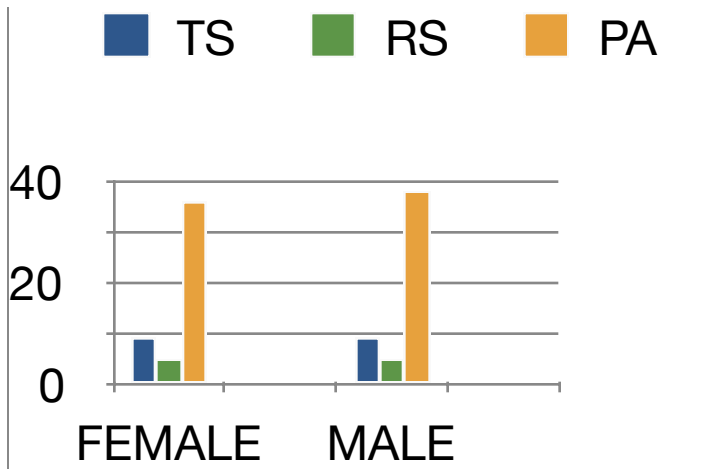
AMERICA

The general trend in gender differences on Suggestibility and Authoritativeness in the United States shows boys having greater total suggestibility scores (11.15), whereas girls having higher research suggestibility and parental authoritativeness scores (6.67 & 38.85). In India, boys are more suggestible (on both measures) than girls (14.28 vs 14), and parental authoritativeness is also greater for boys than for girls (38.11 vs 36.16). (Refer Figure 2)

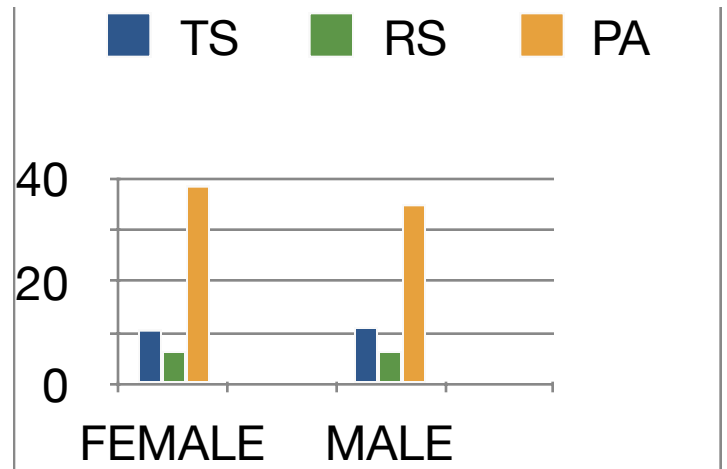
**FIGURE 2**

**Participants' Suggestibility and Parental Authoritativeness, by Gender for India and America**

## SUGGESTIBILITY IN CHILDREN



INDIA



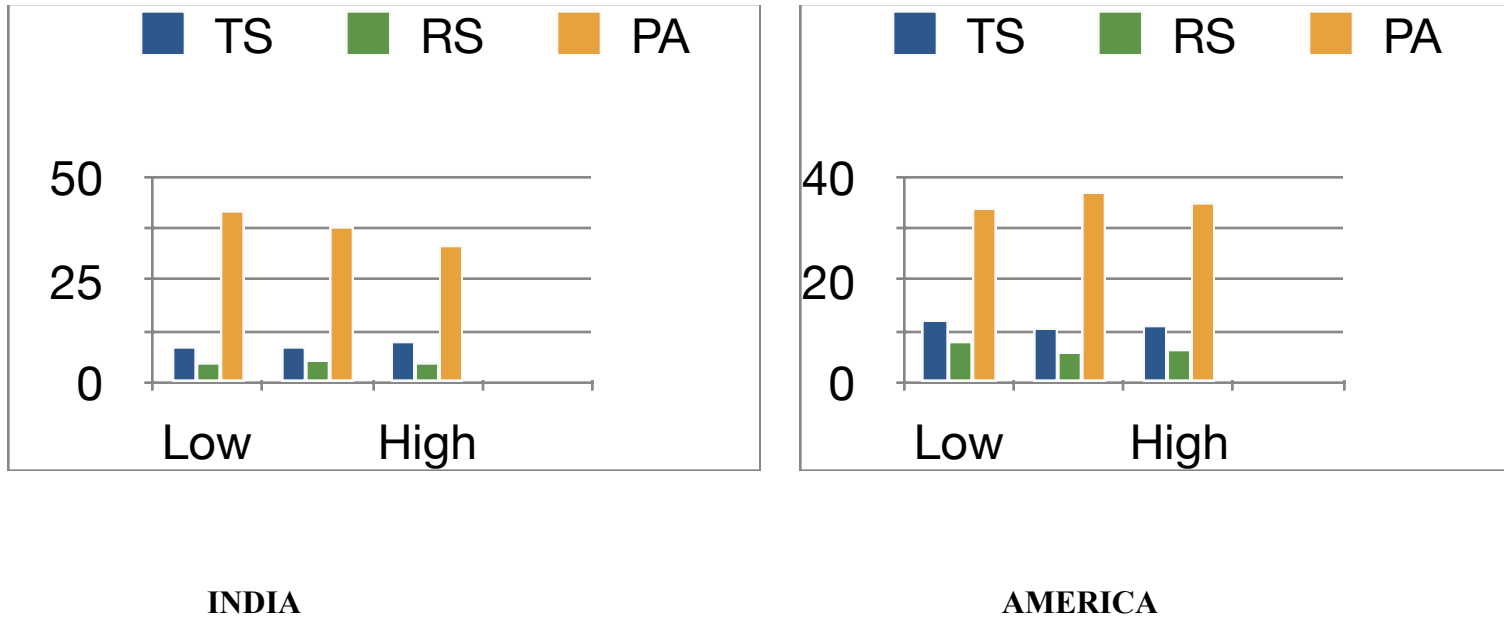
AMERICA

Next, a one-way ANOVA between Income Groups and Suggestibility (both Total and Research) as well as between Income Groups and Parental Authoritativeness Scores showed that for Indian children, Total Suggestibility increases as income level additionally increases (i.e. from Low to High Income Groups). Research Suggestibility in Indian participants, however, is highest in the Middle Income groups than in the other two groups. Parental Authoritativeness also, significantly decreases as income increases.

Alternatively, in American participants, on the other hand, while both Total and Research Suggestibility are greater in the Low and High income groups relative to the middle income group, parental authoritativeness is higher in the middle income group than in the other two groups. (Refer Figure 3)

**FIGURE 3**

**Participants' Suggestibility and Parental Authoritativeness, by Income Group for India and America**



A one-way ANOVA between Ethnicity and Suggestibility and Ethnicity and Parental Authoritativeness was carried out for participants in the United States. While Suggestibility was highest for Asian participants, it was significantly lower for Black/African American and Hispanic participants. Parental Authoritativeness was greatest for the 'Other' group of ethnicities which included Hispanics and Asians, and relatively lower for White-Caucasians and Black/African Americans.

Interestingly, comparing the Asians in India to the Asians in America showed that Total and Research Suggestibility was greater in the participants in United States (13.00 and 7.00

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respectively), than in India (9.18 and 4.95); whereas authoritativeness was slightly greater in Indians Asians than American Asians (37.07 vs 36.00).

A Chi-Square Test of Association between income groups and ethnicity yielded a significant value of 25.22, confirming that participants from similar ethnicities fell into similar income groups. Thus, White-Caucasians and Asians in America, primarily had higher income groups. In India, however, no Chi-Square statistics were calculated because ethnicities were constant.

Thus, P-values from a multiple linear regression model (refer back to Table 1) give us the differences between the two countries on all variables of the study. Of note here, are the significant differences which can be seen in the variables namely: Age, Yield 1 and Total Suggestibility.

Participants in the Indian sample were significantly older than in the American sample- however after controlling for all other factors (such as Gender, Parents' SES Ranks etc.), this age difference was no longer significant. Similarly, Yield 1 shows a significant p-value of 0.004 between the two countries with a greater Yield in USA, than in India- this suggests that children in America are more prone to responding affirmatively to subtly leading questions than children in India. One reason for this could be that of the sample in America, more children were aged three-to-four than of the sample in India. This can be effectively concluded because when controlled

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for factors such as Age; the significance in Yield 1 is not seen between the two countries anymore. Similarly, there are no significant differences between the countries on Shift.

Differences between Total Suggestibility are significant at the  $p < 0.05$  level depicting Suggestibility being greater in the United States than in India; however controlling for age and parents' SES Ranks shows no value of significance for this variable. Similar is true for both Yield 2 and Research Suggestibility scores. Lastly, no significance exists on Parental Authoritativeness between the two countries- even though the data does conclude Authoritativeness being greater in India than in America.

## DISCUSSION

The current study sought to expand upon the limited prior work in the domain of children's suggestibility, primarily in cross-cultural contexts, as well as examine multiple ecological factors that may affect this quality in children.

### **Age and Suggestibility**

Results demonstrated that while children in India were significantly older than the children in America, Suggestibility (both Total and Research) was greater in younger children in America than older children; and only Research Suggestibility was greater in younger children in India.

One possible explanation for Total Suggestibility being greater in older children for the Indian sample, comes from past research presenting evidence of no developmental effects or "re-



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verse developmental effects”, instances in which are conditions where older children and even adults are more susceptible to suggestion than younger children (Brainerd et al, 2008; Otgaar et al 2013). Older children are more likely than younger children to draw inferences, they are more likely to falsely report inferences about the causes of ambiguous events and mistake them for actual experiences (Principe, Guiliano & Root; 2008).

Overall, these findings are in line with the initial hypothesis that while both groups of children respond affirmatively to leading questions, younger children are more suggestible than older children. When children grow older, their memory improves. Thus, more information about past events can be extracted from older children and adults, than younger children. Qualitative analyses in line with the above can be seen in children’s audio recordings in which, when asked “Who broke the toy?”, a three-year old has said that “Billy’s friends smashed his toy”; whereas a six-year old responded to the same question as “Billy’s friends may have accidentally knocked the toy over but I didn’t see it happen in the video”.

Moreover, both younger and older children in the United States are more suggestible than the children in India. One possible explanation for this finding is that in India, inattentiveness in children is negatively reinforced from a very young age, and thus children in India tended to be more focused, paying more attention to the videos than children in America. Additionally, the interviewer’s own cultural background may have played a role in this- as children in India may have felt the need to be more careful while watching the videos and answer

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“correctly” due to the fear of being scolded later as they may have felt the interviewer would inform the parents of their results.

The above findings demonstrate that while children, especially young children, are more suggestible than adults, there is great variation between individuals of the same age in suggestibility and resistance to suggestion. This finding reiterates the need for future research into age and suggestibility related associations in children belonging to a plethora of different cultures and/or countries.

### **Gender and Suggestibility**

Across age and culture, males were found to be more suggestible than females. One possible explanation for this finding is that gender-related social and behavioral characteristics may underlie the significant relationship between gender and suggestibility. Young boys exhibit more externalizing behavior problems than girls in both clinical and non-clinical samples (Sanders & Dadds, 1993) and they tend to be more inattentive, less persistent and display more aggressive/oppositional behaviors than young girls (McFarlane, Powell & Dudgeon, 2002). Past research exploring individual differences in suggestibility, has found that during cued recall girls gave more accurate responses than boys (Chae & Ceci, 2003).

Another possible explanation for this finding may come from the relationship between child and interviewer gender as research in this area has also shown that girls provided more information when asked directed questions posed by female interviewers rather than male interviewers (Lamb & Garretson, 2003).

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This finding replicates previous research showing that gender does explain variance in this area, and individual differences in children's suggestibility can emerge from the adoption of larger scale investigations of the combined and independent contributions of numerous interrelated cognitive and demographic factors (Crossman, 2001; Warren, Lane, Snyder-Boggs & Blevins, 1995 as cited in Bruck & Melnyk, 2004).

### **Socioeconomic Status and Suggestibility**

Findings from the current study demonstrate that in India, while Total Suggestibility increases as incomes increase, Research Suggestibility, is greatest in the middle income groups. One possible explanation for this could be that, in India, children belonging to lower income groups spend little time in formal schooling and more contributing to running the household; child labour thus is an important issue in India. Since these children then spend so much time by themselves, knowing they have a responsibility of taking care of themselves and their families, relatively more than what children from higher income groups face, they may have been more scared by the thought of being tested, and thus felt the need to be more attentive. Additionally, participants belonging to lower SES ranks, also depicted to be exposed to authoritarian parenting, and many studies have found a relationship between low SES and authoritarian parenting (Bluestone & Tamis-LeMonda, 1999; Conger et al., 1994; Grimm-Thomas & Perry-Jenkins, 1994; McLoyd, 1990; Shumow, Vandell, & Posner, 1998; as cited in Fox & Timmerman, 2007).

In America, on the other hand, both Total and Research Suggestibility are greatest in the Lower Income groups. This finding, while confirming our hypothesis that suggestibility is

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greater in participants belonging to lower socio-economic classes, is inconsistent with results from Indian participants. One reason for this maybe due to the fact that while the SES ranks in America primarily ranged from one-to-five, in India they ranged from one-to-eleven. Thus the sample in India actually covered families even from the most impoverished backgrounds and the incapacity to gather such a sample from Ithaca, may have resulted in these results. Previous literature however, has looked at suggestibility being associated with lower SES backgrounds. An explanation comes for this from the differences in the educational and social opportunities experienced by the two SES groups. Moreover, high SES parents are typically found to use a more elaborative conversation style with their children (also characteristic of teachers) compared with low SES parents (Leseman & Sijssling, 1996 as cited in McFarlane, Powell & Dudgeon, 2002).

The findings as a whole may have arisen in part from differences between the two groups' perceptions of the consequences of not conforming with the authoritarian interviewer (see Gudjonsson & Singh, 1984; as cited in McFarlane, Powell & Dudgeon, 2002).

Previous research in this regard thus, has been contradictory and effects detected only in studies with large (>200) samples, thus paving way for future research in this regard.

### **Total Suggestibility and Research Suggestibility**

In general a significant correlation was found between Total Suggestibility and Research Suggestibility, primarily in United States. In India, though not significant, the trend generally shows that participants who scored higher on Total Suggestibility also scored higher on Research

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Suggestibility. Thus, confirming our hypothesis that children who are suggestible shall display the quality regardless of valence of material presented, or the kinds of situations they experience.

Qualitative analyses in line with this finding comes from the response of a child in America who, when asked “Who stole the laptop?” Responded with “The clown stole it”; and a child in India who responded to a similar question saying: “Tammy and Susie were at the table studying, when the laptop was stolen”. Thus, not only is there a spillover effect from one video to another, but children have used suggestions from the first video while recalling incidents from the second interview.

Additionally, elements from a judicial system such as an actual courtroom, a defense lawyer, a judge etc. and this vulnerability and sensitivity of the child witness could result in misunderstanding and miscommunication. Interesting to note, is the significant correlation in these suggestibilities in America but not in India- one explanation for this stems from the difference in perception of events in children from the two countries. While children in America may have had more or less equal attentiveness, and/or motivation for both videos and not seen one as different from another (the difference here being that the research video aimed to mildly depict a misconduct taking place), children in India primarily due to being exposed to crime from a very young age primarily due to media may have comprehended the Research video separately, and paid more attention to it and hence responded more accurately on that video than American children.

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Evidence for this also comes from the fact that more than one parent in America when asked for consent for their child's participation in the study told the interviewer that "my child doesn't even know or hasn't even learned the concept of stealing yet. I doubt he/she'll even understand the videos". On the other hand, children in India tended to respond to the research video using terms such as "crime", "theft", "wrongful activity". One four-year old also weaved a story of the Criminal Investigation Department (a special organization in India created to assist the police in criminal investigations) being involved in the Research Video to help catch the thief and return the laptop to its rightful owner. Since the child has most likely learnt this from the media, add to this the child's parents' are both lawyers and he may have been exposed to and told of these situations to be incorrect relatively more often, than children of parents' with other occupations.

This finding thus, not only confirms the presence of the VSSC as a reliable tool to measure suggestibility proneness in children but also confirms the work of this present study, and recommends future work, such as exposing a child to different levels of crimes, and questioning them at different intervals could be one step future studies could take in this direction.

### **Parental Authoritativeness and Suggestibility**

Results demonstrated parental authoritativeness to be greater in India than in the United States. Interestingly, regardless of culture, older children tend to be exposed to authoritative parenting than younger children. One possible explanation for this is that as children grow older,

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they have more important life decisions to make such as higher education, choosing a life partner etc. and parents' (especially in India) tend to be more involved in decisions as such. However, while exposure to authoritarianism is greater in male participants in India, the reverse is true for participants in America. One reason for this is that greater familial expectations are put on the boy child in India from the very beginning, as it is a known fact that the boy will grow up to take care of the parents in their old age, whereas girls are brought up in a way that they just learn to behave in a more conservative way, possibly also because of observing other female members in the family; in addition to the notion that she is a part of the family temporarily and shall get married soon enough and take care of her counterpart and his family.

In America, on the other hand- the explanation for the reverse effect stems from factors such as better male to female sex ratio, and hence parents' being closer to daughters and knowing that they too shall play a pivotal role in the parents' well being in their lives. Moreover, the growing incidents of teen pregnancies in the United States could be another important factor for parents' being more authoritative towards females than males.

In Addition, authoritativeness is greater in families belonging to lower and middle income groups than higher income groups, both in the Indian and American sample. This finding is line with past literature that summarizes the relationship between SES and parenting style where- in "poverty and economic loss are said to diminish the capacity for supportive, consistent and involved parenting". Lower-class parents are more likely to issue commands without

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explanation, less likely to consult the child about his/her wishes, and less likely to reward the child verbally for behaving in desirable ways. Thus, economic loss and poverty are found to affect children indirectly through their impact on the parents' behavior toward the child.

(McLoyd, 1990; as cited in Fox & Timmerman, 2007).

Lastly, even though no significant association was found between Parental Authoritativeness and Suggestibility in children, the general trend is inconsistent with what was initially hypothesized; in the sense that authoritativeness does not foster suggestibility. Children with authoritative parents, did not score higher on either measures of suggestibility; rather suggestibility decreased as parental authoritativeness increased. Hence, regardless of age, gender, socioeconomic class- children exposed to authoritative parenting were less suggestible than children exposed to permissive parenting.

This finding is line with previous literature that permissive parenting is associated with suggestibility (Burgwyn-Bailes, Baker-Ward, Gordon & Ornstein, 2001). One reason for this may be that children exposed to authoritative parents have learned to trust their parents' judgments the most, and hence cues or suggestions from an unknown stranger may be subject to doubt and second thoughts in their minds. More likely is the fact, that especially when told by a third person they are less likely to believe false suggestions, and more likely to trust what they've seen from the fear of consequences of giving incorrect responses. In addition, children from authoritative families are conditioned from the very beginning to be attentive, to listen to



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instructions carefully and hence during the process of watching the video and responding to questioning tend to accurately recall the events. Thus, concluding why children in the United States are more suggestible than children in India.

While this finding appears to challenge previous literature in this area- more research is definitely needed with different measures of parenting styles to make the content of the items on the questionnaire more uniform, culture neutral while aiming to avoid social conformity in responses. Moreover, to further prove the associations between suggestibility and parental authoritativeness, future studies could look at taking a step forward and having parent's ask the suggestive questions to children so as to see whether their responses change depending on gender of the parent, which parent is asking the questions, presence or absence of sibling in the scenario etc.

### **Implications**

The importance of conducting forensic interviews that are free from bias and misleading information is immense. As illustrated by past research, all people are susceptible to interviewers' suggestions. In addition, while research has identified some of the underlying mechanisms that cause suggestibility, results are often inconsistent. These findings highlight the importance of interviewers having an open mind and considering alternative theories of the events, as even one suggestive interview can taint an individual's reports years later and even highly trained professionals are not able to differentiate reports based on true and false beliefs.

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Future forensic experts would be well-served to examine the child's language, theory of mind, and emotional attachment prior to conducting the actual interview and to prepare a line of questioning that tests alternative hypotheses. Armed with such information, the interviewer can better understand any limitations and hopefully intervene to surmount them.

Additionally, since in many cases children are the only witnesses to legally-relevant events and they comprise a large fraction of the witnesses who appear in criminal and civil cases, the findings from this study may be helpful in determining the reliability of children's statements in forensic-style interview situations in which the interviewer asks leading questions. Though the multidimensional nature of children's suggestibility makes its study challenging, its importance in child witness testimony cannot be overemphasized.

Hence, this research will contribute to better understanding of children's memory in a variety of social and cultural contexts and the nature of their vulnerability and resistance to suggestibility. The study thus, hopes to advance basic theory and provide helpful insights into child witness behavior.

### **Limitations and Future Directions**

The current study examined age-related changes in suggestibility across two age groups- a younger (three-to-five-year-olds) and an older (six-to-seven-year-olds). However, increasing the sample size across cultures in future studies will allow for a more robust examination of age trends in this ability.

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Additionally, the absence of any clear verbal dialogue in the Research Video (depicting the mild misconduct) may have limited children's ability to make accurate evaluations. Adding to this, the fact that subjective responses were audio recorded, may have caused children to become self-conscious about their responses.

Moreover, while the parental measure implemented in the current study did predict children's suggestibility, future studies however, should also examine the impact of other ecological factors including parents' own suggestibility-proneness or siblings' suggestibility levels. Children with suggestible parents, for example, may in turn be more suggestible.

Lastly, children's suggestibility in the current study was examined solely in one region of India and the United States. Future studies should thus explore children's suggestibility levels in different parts of the East and the West as a whole (such as between children in China, Korea, Australia and United States).

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